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Foreword

We are pleased to announce the first special issue of "*Vision Research* reviews 'vision research"'. This issue features 10 invited mini-reviews, all by highly regarded vision researchers, covering a wide range of topics in contemporary 'vision research'. In keeping with the breadth of coverage of the journal, the topics are highly diverse: from "evolution of vertebrate visual pigments and signal transduction" to "neuronal mechanisms of motion and visual stability". From "illusions in the spatial sense of the eye and the perception of visual art", to "plasticity in damaged adult visual systems".

The Special Issue begins with a review of the roughly 500 million year evolution of visual pigments in primates (Bowmaker, 2008). Osorio (2008) reviews and discusses the evolutionary relationship between photoreceptor spectral sensitivities of four groups of land animals—birds, butterflies, primates and hymenopteran insects (bees and wasps)—the color signals that are relevant to them, and how understanding is informed by models of spectral coding and color vision. Wensel (2008) reviews the substantial progress that has been made in understanding the composition and function of the protein complexes involved in signal transduction in the outer segments of vertebrate photoreceptors, and how they work together to convert a light signal into an electrical signal.

Two reviews deal with the control of eye-movements and visual stability. Ilg (2008) reviews the role of cortical areas MT and MST in the coding of visual motion underlying the execution of smooth pursuit eye movements, goal-directed hand movements, and addresses the contributions of these areas to motion perception, and Wurtz (2008) considers the substantial advances in understanding the neuronal mechanisms underlying visual stability derived primarily from neuronal recording and inactivation studies in the monkey, an excellent model for systems in the human brain.

Several of the reviews focus on aspects of visual perception. Kingdom (2008) explores the cues that the visual system exploits in order to discriminate light from material. These cues include luminance relations, figural relations, 3D-shape, depth, color, texture, and motion. Loffler (2008) focuses on low and intermediate stages of contour shape processing. He reviews evidence from psychophysics and physiology that seems to converge towards the identification of an intermediate level of shape processing, where sensitivity to global shape attributes emerge. Gerald Westheimer (2008) reviews a wide array of geometrical–optical illusions. His review points to a hierarchical ordering of spatial primitives and shows that geometrical–optical illusions may provide a powerful analytical tool for unraveling the neural processes involved in the spatial sense. Mamassian (2008) surveys recent work related to the perception of art. In particular, he compares how ambiguities in composition, spatial scale, illumination and color, three-dimensional layout, shape, and movement are resolved by perceptual priors and by artistic convention.

Finally, Huxlin (2008), reviews the interesting and controversial question of perceptual plasticity in damaged, adult visual systems.

We invited the authors to submit reviews that were broad and balanced in both the topics they address and the articles they cite; that not only summarize the field, but also help to explain it to the non-specialist in that area. We think that these authors have done just that and we hope that you find their reviews interesting and informative.

We plan to make "*Vision Research* reviews 'vision research"' an annual event. Should you have ideas about a topic that seems ripe for review, or are interested in submitting a review to a future special issue, please let us know.

We hope you enjoy this first annual special issue of "*Vision Research* reviews 'vision research"', and look forward to hearing from you.

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